

# SEQUENCE LISTING

<110> Macina, Roberto A  
Nair, Manoj  
Chen, Seiyu

<120> Compositions and Methods Relating to Lung Specific  
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<151> 2000-07-21

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<170> PatentIn Ver. 2.1

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 88. **TO** \_\_\_\_\_  
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<210> 7

<212> DNA

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<222> (9)

<400> 7

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<211> 777
<212> DNA
<213> Homo sapiens

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<210> 9

<211> 3195

<212> DNA

<213> Homo sapiens

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<211> 949

<212> DNA

<213> Homo sapiens

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 <213> Homo sapiens

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<213> Homo sapiens

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```

<210> 39

<211> 436

<212> PRT

<213> Homo sapiens

<400> 39

```

Glu Trp Ile Ser Tyr Ile Arg Gly Gly Gly Glu Arg Ile Tyr Tyr Ala
  1             5             10             15

```

```

Asp Ser Val Arg Gly Arg Phe Thr Val Ser Arg Asp Asn Ala Lys Asn
      20             25             30

```

```

Ser Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val
      35             40             45

```

```

Tyr Phe Cys Ala Arg Glu Pro Pro Ala Pro Asn Tyr Phe Asp Cys Trp
      50             55             60

```

```

Ser Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro
      65             70             75             80

```

```

Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Gly Gly Thr
      85             90             95

```

```

Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr
      100            105            110

```

```

Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro
      115            120            125

```

```

Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr

```

09009567 072004

130		135		140
Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Thr Cys Asn Val Asn				
145		150		155
				160
His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Leu Lys Thr				
	165		170	175
Pro Leu Gly Asp Thr Thr His Thr Cys Pro Arg Cys Pro Glu Pro Lys				
	180		185	190
Ser Cys Asp Thr Pro Pro Pro Cys Pro Arg Cys Pro Glu Pro Lys Ser				
	195		200	205
Cys Asp Thr Pro Pro Pro Cys Pro Arg Cys Pro Ala Pro Glu Leu Leu				
	210		215	220
Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu				
225		230		235
				240
Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser				
	245		250	255
His Glu Asp Pro Glu Val Gln Phe Lys Trp Tyr Val Asp Gly Val Glu				
	260		265	270
Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr				
	275		280	285
Phe Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn				
	290		295	300
Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro				
305		310		315
				320
Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Gln Pro Arg Glu Pro Gln				
	325		330	335
Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val				
	340		345	350
Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val				
	355		360	365
Glu Trp Glu Ser Ser Gly Gln Pro Glu Asn Asn Tyr Asn Thr Thr Pro				
	370		375	380
Pro Met Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr				

385                      390                      395                      400

Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Ile Phe Ser Cys Ser Val  
                          405                      410                      415

Met His Glu Ala Leu His Asn Arg Phe Thr Gln Lys Ser Leu Ser Leu  
                          420                      425                      430

Ser Pro Gly Lys  
                          435

<210> 40  
 <211> 168  
 <212> PRT  
 <213> Homo sapiens

<400> 40  
 Pro Gln Leu Ala Cys Leu Phe Gln Val Lys Ser Gly Ser Pro Ala Val  
   1                      5                      10                      15

Leu Ala Phe Ala Lys Glu Lys Ser Phe Gly Trp Pro Ser Phe Ile Thr  
                          20                      25                      30

Tyr Thr Val Gly Val Ser Asp Pro Ala Ala Gly Ser Gln Gly Pro Leu  
                          35                      40                      45

Ser Thr Thr Leu Thr Phe Ser Ser Pro Val Thr Asn Gln Ala Ile Ala  
                          50                      55                      60

Ile Pro Val Thr Val Ala Phe Val Met Asp Arg Arg Gly Pro Gly Pro  
   65                      70                      75                      80

Tyr Gly Ala Ser Leu Phe Gln His Phe Leu Asp Ser Tyr Gln Val Met  
                          85                      90                      95

Phe Phe Thr Leu Phe Ala Leu Leu Ala Gly Thr Ala Val Met Ile Ile  
                          100                      105                      110

Ala Tyr His Thr Val Cys Thr Pro Arg Asp Leu Ala Val Pro Ala Ala  
                          115                      120                      125

Leu Thr Pro Arg Ala Ser Pro Gly His Ser Pro His Tyr Phe Ala Ala  
                          130                      135                      140

Ser Ser Pro Thr Ser Pro Asn Ala Leu Pro Pro Ala Arg Lys Ala Ser  
   145                      150                      155                      160

Pro Pro Ser Gly Leu Trp Ser Pro  
165

<210> 41  
<211> 78  
<212> PRT  
<213> Homo sapiens

<400> 41  
Val Ser Glu Gly Ala Thr Trp Ala Ile Gly Phe Pro Ala Ser Phe Pro  
1 5 10 15

Leu Phe Leu Ala Pro Ala Ala Glu Ala Gly Arg Pro Trp Arg Thr Ser  
20 25 30

Trp Gly Leu Thr Ala Ala Ser Pro Gly Ser Ser Trp Gly His Leu Ser  
35 40 45

Ser Lys Val Cys Thr Gln Glu Val Pro His His Ile Gln Pro His Gly  
50 55 60

Ser Pro Arg Ser Ala Arg Gln Gln Ile Arg Ala Pro Cys His  
65 70 75

<210> 42  
<211> 1118  
<212> PRT  
<213> Homo sapiens

<400> 42  
Met Ala Arg Ser Pro Gly Arg Ala Tyr Ala Leu Leu Leu Leu Ile  
1 5 10 15

Cys Phe Asn Val Gly Ser Gly Leu His Leu Gln Val Leu Ser Thr Arg  
20 25 30

Asn Glu Asn Lys Leu Leu Pro Lys His Pro His Leu Val Arg Gln Lys  
35 40 45

Arg Ala Trp Ile Thr Ala Pro Val Ala Leu Arg Glu Gly Glu Asp Leu  
50 55 60

Ser Lys Lys Asn Pro Ile Ala Lys Ile His Ser Asp Leu Ala Glu Glu  
65 70 75 80

Arg Gly Leu Lys Ile Thr Tyr Lys Tyr Thr Gly Lys Gly Ile Thr Glu

0909567 072001  
100220 2956660

	85		90		95
Pro	Pro Phe Gly Ile Phe Val Phe Asn Lys Asp Thr Gly Glu Leu Asn				
	100		105		110
Val	Thr Ser Ile Leu Asp Arg Glu Glu Thr Pro Phe Phe Leu Leu Thr				
	115		120		125
Gly	Tyr Ala Leu Asp Ala Arg Gly Asn Asn Val Glu Lys Pro Leu Glu				
	130		135		140
Leu	Arg Ile Lys Val Leu Asp Ile Asn Asp Asn Glu Pro Val Phe Thr				
145		150		155	160
Gln	Asp Val Phe Val Gly Ser Val Glu Glu Leu Ser Ala Ala His Thr				
	165		170		175
Leu	Val Met Lys Ile Asn Ala Thr Asp Ala Asp Glu Pro Asn Thr Leu				
	180		185		190
Asn	Ser Lys Ile Ser Tyr Arg Ile Val Ser Leu Glu Pro Ala Tyr Pro				
	195		200		205
Pro	Val Phe Tyr Leu Asn Lys Asp Thr Gly Glu Ile Tyr Thr Thr Ser				
	210		215		220
Val	Thr Leu Asp Arg Glu Glu His Ser Ser Tyr Thr Leu Thr Val Glu				
225		230		235	240
Ala	Arg Asp Gly Asn Gly Glu Val Thr Asp Lys Pro Val Lys Gln Ala				
	245		250		255
Gln	Val Gln Ile Arg Ile Leu Asp Val Asn Asp Asn Ile Pro Val Val				
	260		265		270
Glu	Asn Lys Val Leu Glu Gly Met Val Glu Glu Asn Gln Val Asn Val				
	275		280		285
Glu	Val Thr Arg Ile Lys Val Phe Asp Ala Asp Glu Ile Gly Ser Asp				
	290		295		300
Asn	Trp Leu Ala Asn Phe Thr Phe Ala Ser Gly Asn Glu Gly Gly Tyr				
305		310		315	320
Phe	His Ile Glu Thr Asp Ala Gln Thr Asn Glu Gly Ile Val Thr Leu				
	325		330		335
Ile	Lys Glu Val Asp Tyr Glu Glu Met Lys Asn Leu Asp Phe Ser Val				

				340				345						350					
Ile	Val	Ala	Asn	Lys	Ala	Ala	Phe	His	Lys	Ser	Ile	Arg	Ser	Lys	Tyr				
		355					360					365							
Lys	Pro	Thr	Pro	Ile	Pro	Ile	Lys	Val	Lys	Val	Lys	Asn	Val	Lys	Glu				
	370					375					380								
Gly	Ile	His	Phe	Lys	Ser	Ser	Val	Ile	Ser	Ile	Tyr	Val	Ser	Glu	Ser				
385					390					395					400				
Met	Asp	Arg	Ser	Ser	Lys	Gly	Gln	Ile	Ile	Gly	Asn	Phe	Gln	Ala	Phe				
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Asp	Glu	Asp	Thr	Gly	Leu	Pro	Ala	His	Ala	Arg	Tyr	Val	Lys	Leu	Glu				
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Asp	Arg	Asp	Asn	Trp	Ile	Ser	Val	Asp	Ser	Val	Thr	Ser	Glu	Ile	Lys				
		435					440					445							
Leu	Ala	Lys	Leu	Pro	Asp	Phe	Glu	Ser	Arg	Tyr	Val	Gln	Asn	Gly	Thr				
	450					455					460								
Tyr	Thr	Val	Lys	Ile	Val	Ala	Ile	Ser	Glu	Asp	Tyr	Pro	Arg	Lys	Thr				
465					470					475					480				
Ile	Thr	Gly	Thr	Val	Leu	Ile	Asn	Val	Glu	Asp	Ile	Asn	Asp	Asn	Cys				
				485					490					495					
Pro	Thr	Leu	Ile	Glu	Pro	Val	Gln	Thr	Ile	Cys	His	Asp	Ala	Glu	Tyr				
			500					505					510						
Val	Asn	Val	Thr	Ala	Glu	Asp	Leu	Asp	Gly	His	Pro	Asn	Ser	Gly	Pro				
		515					520					525							
Phe	Ser	Phe	Ser	Val	Ile	Asp	Lys	Pro	Pro	Gly	Met	Ala	Glu	Lys	Trp				
	530					535					540								
Lys	Ile	Ala	Arg	Gln	Glu	Ser	Thr	Ser	Val	Leu	Leu	Gln	Gln	Ser	Glu				
545					550					555					560				
Lys	Lys	Leu	Gly	Arg	Ser	Glu	Ile	Gln	Phe	Leu	Ile	Ser	Asp	Asn	Gln				
				565					570					575					
Gly	Phe	Ser	Cys	Pro	Glu	Lys	Gln	Val	Leu	Thr	Leu	Thr	Val	Cys	Glu				
			580					585					590						
Cys	Leu	His	Gly	Ser	Gly	Cys	Arg	Glu	Ala	Gln	His	Asp	Ser	Tyr	Val				





0909567-072001

850	855	860
Thr Ala Ser His Ser Leu Cys Glu Gln Thr Met Val Asn Ser Glu Asn		
865	870	875 880
Thr Tyr Ser Ser Gly Ser Ser Phe Pro Val Pro Lys Ser Leu Gln Glu		
	885	890 895
Ala Asn Ala Glu Lys Val Thr Gln Glu Ile Val Thr Glu Arg Ser Val		
	900	905 910
Ser Ser Arg Gln Ala Gln Lys Val Ala Thr Pro Leu Pro Asp Pro Met		
	915	920 925
Ala Ser Arg Asn Val Ile Ala Thr Glu Thr Ser Tyr Val Thr Gly Ser		
	930	935 940
Thr Met Pro Pro Thr Thr Val Ile Leu Gly Pro Ser Gln Pro Gln Ser		
945	950	955 960
Leu Ile Val Thr Glu Arg Val Tyr Ala Pro Ala Ser Thr Leu Val Asp		
	965	970 975
Gln Pro Tyr Ala Asn Glu Gly Thr Val Val Val Thr Glu Arg Val Ile		
	980	985 990
Gln Pro His Gly Gly Gly Ser Asn Pro Leu Glu Gly Thr Gln His Leu		
	995	1000 1005
Gln Asp Val Pro Tyr Val Met Val Arg Glu Arg Glu Ser Phe Leu Ala		
1010	1015	1020
Pro Ser Ser Gly Val Gln Pro Thr Leu Ala Met Pro Asn Ile Ala Val		
1025	1030	1035 1040
Gly Gln Asn Val Thr Val Thr Glu Arg Val Leu Ala Pro Ala Ser Thr		
	1045	1050 1055
Leu Gln Ser Ser Tyr Gln Ile Pro Thr Glu Asn Ser Met Thr Ala Arg		
	1060	1065 1070
Asn Thr Thr Val Ser Gly Ala Gly Val Pro Gly Pro Leu Pro Asp Phe		
	1075	1080 1085
Gly Leu Glu Glu Ser Gly His Ser Asn Ser Thr Ile Thr Thr Ser Ser		
1090	1095	1100
Thr Arg Val Thr Lys His Ser Thr Val Gln His Ser Tyr Ser		

1105

1110

1115

&lt;210&gt; 43

&lt;211&gt; 97

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 43

Met Thr Lys Gly Thr Ser Ser Phe Gly Lys Arg Arg Asn Lys Thr His  
 1 5 10 15

Thr Leu Cys Arg Arg Cys Gly Ser Lys Ala Tyr His Leu Gln Lys Ser  
 20 25 30

Thr Cys Gly Lys Cys Gly Tyr Pro Ala Lys Arg Lys Arg Lys Tyr Asn  
 35 40 45

Trp Ser Ala Lys Ala Lys Arg Arg Asn Thr Thr Gly Thr Gly Arg Met  
 50 55 60

Arg His Leu Lys Ile Val Tyr Arg Arg Phe Arg His Gly Phe Arg Glu  
 65 70 75 80

Gly Thr Thr Pro Lys Pro Lys Arg Ala Ala Val Ala Ala Ser Ser Ser  
 85 90 95

Ser

&lt;210&gt; 44

&lt;211&gt; 889

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 44

Met Ala Ala Ala Val Gly Val Arg Gly Arg Tyr Glu Leu Pro Pro Cys  
 1 5 10 15

Ser Gly Pro Gly Trp Leu Leu Ser Leu Ser Ala Leu Leu Ser Val Ala  
 20 25 30

Ala Arg Gly Ala Phe Ala Thr Thr His Trp Val Val Thr Glu Asp Gly  
 35 40 45

Lys Ile Gln Gln Gln Val Asp Ser Pro Met Asn Leu Lys His Pro His  
 50 55 60



Ala	Leu	Gln	Ala	Arg	Pro	Gly	Phe	Glu	Gln	Ala	Ile	Lys	Arg	Lys	His			
				325						330				335				
Ala	Val	Leu	Cys	Gln	Gln	Lys	Leu	Glu	Gln	Lys	Leu	Glu	Ala	Gln	His			
			340					345					350					
Arg	Ser	Leu	Gln	Arg	Thr	Leu	Asn	Glu	Leu	Lys	Glu	Tyr	Gln	Lys	Gln			
			355				360					365						
His	Asp	His	Tyr	Leu	Arg	Gln	Gln	Glu	Ile	Leu	Glu	Lys	His	Lys	Leu			
			370			375					380							
Ile	Gln	Glu	Glu	Gln	Ile	Leu	Arg	Asn	Ile	Ile	His	Glu	Thr	Gln	Met			
385					390					395					400			
Ala	Lys	Glu	Ala	Gln	Leu	Gly	Asn	His	Gln	Ile	Cys	Arg	Leu	Val	Asn			
				405					410					415				
Gln	Gln	His	Ser	Leu	His	Cys	Gln	Trp	Asp	Gln	Pro	Val	Arg	Tyr	His			
			420					425					430					
Arg	Gly	Asp	Ile	Phe	Glu	Asn	Val	Asp	Tyr	Val	Gln	Phe	Gly	Glu	Asp			
		435					440					445						
Ser	Ser	Thr	Ser	Ser	Met	Met	Ser	Val	Asn	Phe	Asp	Val	Gln	Ser	Asn			
		450				455					460							
Gln	Ser	Asp	Ile	Asn	Asp	Ser	Val	Lys	Ser	Ser	Pro	Val	Ala	His	Ser			
465					470					475					480			
Ile	Leu	Trp	Ile	Trp	Gly	Arg	Asp	Ser	Asp	Ala	Tyr	Arg	Asp	Lys	Gln			
			485					490					495					
His	Ile	Leu	Trp	Pro	Lys	Arg	Ala	Asp	Cys	Thr	Glu	Ser	Tyr	Pro	Arg			
			500					505					510					
Val	Pro	Val	Gly	Gly	Glu	Leu	Pro	Thr	Tyr	Phe	Leu	Pro	Pro	Glu	Asn			
		515					520					525						
Lys	Gly	Leu	Arg	Ile	His	Glu	Leu	Ser	Ser	Asp	Asp	Tyr	Ser	Thr	Glu			
		530				535				540								
Glu	Glu	Ala	Gln	Thr	Pro	Asp	Cys	Ser	Ile	Thr	Asp	Phe	Arg	Lys	Ser			
545					550					555					560			
His	Thr	Leu	Ser	Tyr	Leu	Val	Lys	Glu	Leu	Glu	Val	Arg	Met	Asp	Leu			
			565					570					575					

Lys	Ala	Lys	Met	Pro	Asp	Asp	His	Ala	Arg	Lys	Ile	Leu	Leu	Ser	Arg	580	585	590	
Ile	Asn	Asn	Tyr	Thr	Ile	Pro	Glu	Glu	Glu	Ile	Gly	Ser	Phe	Leu	Phe	595	600	605	
His	Ala	Ile	Asn	Lys	Pro	Asn	Ala	Pro	Ile	Trp	Leu	Ile	Leu	Asn	Glu	610	615	620	
Ala	Gly	Leu	Tyr	Trp	Arg	Ala	Val	Gly	Asn	Ser	Thr	Phe	Ala	Ile	Ala	625	630	635	640
Cys	Leu	Gln	Arg	Ala	Leu	Asn	Leu	Ala	Pro	Leu	Gln	Tyr	Gln	Asp	Val	645	650	655	
Pro	Leu	Val	Asn	Leu	Ala	Asn	Leu	Leu	Ile	His	Tyr	Gly	Leu	His	Leu	660	665	670	
Asp	Ala	Thr	Lys	Leu	Leu	Leu	Gln	Ala	Leu	Ala	Ile	Asn	Ser	Ser	Glu	675	680	685	
Pro	Leu	Thr	Phe	Leu	Ser	Leu	Gly	Asn	Ala	Tyr	Leu	Ala	Leu	Lys	Asn	690	695	700	
Ile	Ser	Gly	Ala	Leu	Glu	Ala	Phe	Arg	Gln	Ala	Leu	Lys	Leu	Thr	Thr	705	710	715	720
Lys	Cys	Pro	Glu	Cys	Glu	Asn	Ser	Leu	Lys	Leu	Ile	Arg	Cys	Met	Gln	725	730	735	
Phe	Tyr	Pro	Phe	Leu	Tyr	Asn	Ile	Thr	Ser	Ser	Val	Cys	Ser	Gly	Thr	740	745	750	
Val	Val	Glu	Glu	Ser	Asn	Gly	Ser	Asp	Glu	Met	Glu	Asn	Ser	Asp	Glu	755	760	765	
Thr	Lys	Met	Ser	Glu	Glu	Ile	Leu	Ala	Leu	Val	Asp	Glu	Phe	Gln	Gln	770	775	780	
Ala	Trp	Pro	Leu	Glu	Gly	Phe	Gly	Gly	Ala	Leu	Glu	Met	Lys	Gly	Arg	785	790	795	800
Arg	Leu	Asp	Leu	Gln	Gly	Ile	Arg	Val	Leu	Lys	Lys	Gly	Pro	Gln	Asp	805	810	815	
Gly	Val	Ala	Arg	Ser	Ser	Cys	Tyr	Gly	Asp	Cys	Arg	Ser	Glu	Asp	Asp	820	825	830	

Glu Ala Thr Glu Trp Ile Thr Phe Gln Val Lys Arg Val Lys Lys Pro  
835 840 845

Lys Gly Asp His Lys Lys Thr Pro Gly Lys Lys Val Glu Thr Gly Gln  
850 855 860

Ile Glu Asn Gly His Arg Tyr Gln Ala Asn Leu Glu Ile Thr Gly Pro  
865 870 875 880

Lys Val Ala Ser Pro Gly Pro Gln Gly  
885

<210> 45

<211> 690

<212> PRT

<213> Homo sapiens

<400> 45

Phe Leu Thr Leu Phe Ile Phe Arg Ser Gly Leu Cys Arg Gly Asn Ser  
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Val Glu Arg Lys Ile Tyr Ile Pro Leu Asn Lys Thr Ala Pro Cys Val  
20 25 30

Arg Leu Leu Asn Ala Thr His Gln Ile Gly Cys Gln Ser Ser Ile Ser  
35 40 45

Gly Asp Thr Gly Val Ile His Val Val Glu Lys Glu Glu Asp Leu Gln  
50 55 60

Trp Val Leu Thr Asp Gly Pro Asn Pro Pro Tyr Met Val Leu Leu Glu  
65 70 75 80

Ser Lys His Phe Thr Arg Asp Leu Met Glu Lys Leu Lys Gly Arg Thr  
85 90 95

Ser Arg Ile Ala Gly Leu Ala Val Ser Leu Thr Lys Pro Ser Pro Ala  
100 105 110

Ser Gly Phe Ser Pro Ser Val Gln Cys Pro Asn Asp Gly Phe Gly Val  
115 120 125

Tyr Ser Asn Ser Tyr Gly Pro Glu Phe Ala His Cys Arg Glu Ile Gln  
130 135 140

Trp Asn Ser Leu Gly Asn Gly Leu Ala Tyr Glu Asp Phe Ser Phe Pro

0909567 072004  
T00240 2956660

145	150	155	160
Ile Phe Leu Leu Glu Asp Glu Asn Glu Thr Lys Val Ile Lys Gln Cys			
	165	170	175
Tyr Gln Asp His Asn Leu Ser Gln Asn Gly Ser Ala Pro Thr Phe Pro			
	180	185	190
Leu Cys Ala Met Gln Leu Phe Ser His Met His Ala Val Ile Ser Thr			
	195	200	205
Ala Thr Cys Met Arg Arg Ser Ser Ile Gln Ser Thr Phe Ser Ile Asn			
	210	215	220
Pro Glu Ile Val Cys Asp Pro Leu Ser Asp Tyr Asn Val Trp Ser Met			
	225	230	235
Leu Lys Pro Ile Asn Thr Thr Gly Thr Leu Lys Pro Asp Asp Arg Val			
	245	250	255
Val Val Ala Ala Thr Arg Leu Asp Ser Arg Ser Phe Phe Trp Asn Val			
	260	265	270
Ala Pro Gly Ala Glu Ser Ala Val Ala Ser Phe Val Thr Gln Leu Ala			
	275	280	285
Ala Ala Glu Ala Leu Gln Lys Ala Pro Asp Val Thr Thr Leu Pro Arg			
	290	295	300
Asn Val Met Phe Val Phe Phe Gln Gly Glu Thr Phe Asp Tyr Ile Gly			
	305	310	315
Ser Ser Arg Met Val Tyr Asp Met Glu Lys Gly Lys Phe Pro Val Gln			
	325	330	335
Leu Glu Asn Val Asp Ser Phe Val Glu Leu Gly Gln Val Ala Leu Arg			
	340	345	350
Thr Ser Leu Glu Leu Trp Met His Thr Asp Pro Val Ser Gln Lys Asn			
	355	360	365
Glu Ser Val Arg Asn Gln Val Glu Asp Leu Leu Ala Thr Leu Glu Lys			
	370	375	380
Ser Gly Ala Gly Val Pro Ala Val Ile Leu Arg Arg Pro Asn Gln Ser			
	385	390	395
Gln Pro Leu Pro Pro Ser Ser Leu Gln Arg Phe Leu Arg Ala Arg Asn			



405										410					415				
Ile	Ser	Gly	Val	Val	Leu	Ala	Asp	His	Ser	Gly	Ala	Phe	His	Asn	Lys				
420					425					430									
Tyr	Tyr	Gln	Ser	Ile	Tyr	Asp	Thr	Ala	Glu	Asn	Ile	Asn	Val	Ser	Tyr				
435					440					445									
Pro	Glu	Trp	Leu	Ser	Pro	Glu	Glu	Asp	Leu	Asn	Phe	Val	Thr	Asp	Thr				
450					455					460									
Ala	Lys	Ala	Leu	Ala	Asp	Val	Ala	Thr	Val	Leu	Gly	Arg	Ala	Leu	Tyr				
465					470					475					480				
Glu	Leu	Ala	Gly	Gly	Thr	Asn	Phe	Ser	Asp	Thr	Val	Gln	Ala	Asp	Pro				
485					490					495									
Gln	Thr	Val	Thr	Arg	Leu	Leu	Tyr	Gly	Phe	Leu	Ile	Lys	Ala	Asn	Asn				
500					505					510									
Ser	Trp	Phe	Gln	Ser	Ile	Leu	Arg	Gln	Asp	Leu	Arg	Ser	Tyr	Leu	Gly				
515					520					525									
Asp	Gly	Pro	Leu	Gln	His	Tyr	Ile	Ala	Val	Ser	Ser	Pro	Thr	Asn	Thr				
530					535					540									
Thr	Tyr	Val	Val	Gln	Tyr	Ala	Leu	Ala	Asn	Leu	Thr	Gly	Thr	Val	Val				
545					550					555					560				
Asn	Leu	Thr	Arg	Glu	Gln	Cys	Gln	Asp	Pro	Ser	Lys	Val	Pro	Ser	Glu				
565					570					575									
Asn	Lys	Asp	Leu	Tyr	Glu	Tyr	Ser	Trp	Val	Gln	Gly	Pro	Leu	His	Ser				
580					585					590									
Asn	Glu	Thr	Asp	Arg	Leu	Pro	Arg	Cys	Val	Arg	Ser	Thr	Ala	Arg	Leu				
595					600					605									
Ala	Arg	Ala	Leu	Ser	Pro	Ala	Phe	Glu	Leu	Ser	Gln	Trp	Ser	Ser	Thr				
610					615					620									
Glu	Tyr	Ser	Thr	Trp	Thr	Glu	Ser	Arg	Trp	Lys	Asp	Ile	Arg	Ala	Arg				
625					630					635					640				
Ile	Phe	Leu	Ile	Ala	Ser	Lys	Glu	Leu	Glu	Leu	Ile	Thr	Leu	Thr	Val				
645					650					655									
Gly	Phe	Gly	Ile	Leu	Ile	Phe	Ser	Leu	Ile	Val	Thr	Tyr	Cys	Ile	Asn				

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        660                665                670
Ala Lys Ala Asp Val Leu Phe Ile Ala Pro Arg Glu Pro Gly Ala Val
      675                680                685

Ser Tyr
      690

<210> 46
<211> 170
<212> PRT
<213> Homo sapiens

<400> 46
Gln Val Pro Arg Ser Lys Ala Leu Glu Val Thr Lys Leu Ala Ile Glu
  1                5                10                15

Ala Gly Phe Arg His Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu
      20                25                30

Gln Val Gly Leu Ala Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys
      35                40                45

Arg Glu Asp Ile Phe Tyr Thr Ser Lys Leu Trp Ser Thr Phe His Arg
      50                55                60

Pro Glu Leu Val Arg Pro Ala Leu Glu Asn Ser Leu Lys Lys Ala Gln
      65                70                75                80

Leu Asp Tyr Val Asp Leu Tyr Leu Ile His Ser Pro Met Ser Leu Lys
      85                90                95

Pro Gly Glu Glu Leu Ser Pro Thr Asp Glu Gln Val Ala Lys Val Ile
      100                105                110

Phe Asp Ile Val Asp Leu Cys Thr Thr Trp Glu Gly Met Glu Lys Cys
      115                120                125

Lys Asp Gly Arg Asn Trp Gly Lys Ser Ile Gly Val Ser His Phe Asn
      130                135                140

Pro Gln Ala Leu Gly Met Ser Leu Gln Lys Ala Gly Ile Gln Leu Lys
      145                150                155                160

Arg Ser Ala Pro Val Glu Cys Pro Ile Tyr
      165                170
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**SECRET**

Met Thr Thr Glu Thr Gly Pro Asp Ser Glu Val Lys Lys Ala Gln Glu  
1 5 10 15

Thr Pro Ala Gly His Gly His Pro Glu Ala Asn Ser Asn Glu Lys His  
35 40 45

Glu Lys Asp Tyr Ser Glu Ala Asp Gly Leu Ser Glu Arg Thr Thr Pro  
65 70 75 80

Ser Lys Ala Gln Lys Ser Pro Gln Lys Ile Ala Lys Lys Tyr Lys Ser  
85 90 95

Ala Ile Cys Arg Val Thr Leu Leu Asp Ala Ser Glu Tyr Glu Cys Glu  
100 105 110

Val Glu Lys His Gly Arg Gly Gln Val Leu Phe Asp Leu Val Cys Glu  
115 120 125

His Leu Asn Leu Leu Glu Lys Asp Tyr Phe Gly Leu Thr Phe Cys Asp  
130 135 140

Ala Asp Ser Gln Lys Asn Trp Leu Asp Pro Ser Lys Glu Ile Lys Lys  
145 150 155 160

Gln Ile Arg Ser Glu Trp Leu Val Val Phe Gly Glu Val Gly Ser Pro  
165 170 175

Trp Asn Phe Ala Phe Thr Val Lys Phe Tyr Pro Pro Asp Pro Ala Gln  
180 185 190

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Leu Thr Glu Asp Ile Thr Arg Tyr Tyr Leu Cys Leu Gln Leu Arg Ala
      195                                200                205

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Asp Ile Ile Thr Gly Arg Leu Pro Cys Ser Phe Val Thr His Ala Leu  
210 215 220

Leu Gly Ser Tyr Ala Val Gln Ala Glu Leu Gly Asp Tyr Asp Ala Glu  
225 230 235 240

Glu His Val Gly Asn Tyr Val Ser Glu Leu Arg Phe Ala Pro Asn Gln  
245 250 255

Thr Arg Glu Leu Glu Glu Arg Ile Met Glu Leu His Lys Thr Tyr Arg  
260 265 270

Gly Met Thr Pro Gly Glu Ala Glu Ile His Phe Leu Glu Asn Ala Lys  
275 280 285

Lys Leu Ser Met Tyr Gly Val Asp Leu His His Ala Lys Asp Ser Glu  
290 295 300

Gly Ile Asp Ile Met Leu Gly Val Cys Ala Asn Gly Leu Leu Ile Tyr  
305 310 315 320

Arg Asp Arg Leu Arg Ile Asn Arg Phe Ala Trp Pro Lys Ile Leu Lys  
325 330 335

Ile Ser Tyr Lys Arg Ser Asn Phe Tyr Ile Lys Ile Arg Pro Gly Glu  
340 345 350

Tyr Glu Gln Phe Glu Ser Thr Ile Gly Phe Lys Leu Pro Asn His Arg  
355 360 365

Ser Ala Lys Arg Leu Trp Lys Val Cys Ile Glu His His Thr Phe Phe  
370 375 380

Arg Leu Val Ser Pro Glu Pro Pro Pro Lys Gly Phe Leu Val Met Gly  
385 390 395 400

Ser Lys Phe Arg Tyr Ser Gly Arg Thr Gln Ala Gln Thr Arg Gln Ala  
405 410 415

Ser Ala Leu Ile Asp Arg Pro Ala Pro Phe Phe Glu Arg Ser Ser Ser  
420 425 430

Lys Arg Tyr Thr Met Ser Arg Ser Leu Asp Gly Ala Glu Phe Ser Arg  
435 440 445

Pro Ala Ser Val Ser Glu Asn His Asp Ala Gly Pro Asp Gly Asp Lys  
450 455 460

Arg Asp Glu Asp Gly Glu Ser Gly Gly Gln Arg Ser Glu Ala Glu Glu  
465 470 475 480







Arg Ser Thr Asn Leu Ala Ala Asn Thr Pro Gly Lys Gly Gly Arg Leu		
1250	1255	1260
Arg Phe Ala Ser Pro Ser Gly Pro Gln Arg Ala Gly Leu Arg Glu Gly		
1265	1270	1275 1280
Ser Glu Glu Lys Val Lys Pro Pro Arg Pro Arg Ala Pro Glu Ser Asp		
1285	1290	1295
Thr Gly Asp Glu Asp Gln Asp Gln Glu Arg Asp Thr Val Phe Leu Lys		
1300	1305	1310
Asp Asn His Leu Ala Ile Glu Arg Lys Cys Ser Ser Ile Thr Val Ser		
1315	1320	1325
Ser Thr Ser Ser Leu Glu Ala Glu Val Asp Phe Thr Val Ile Gly Asp		
1330	1335	1340
Tyr His Gly Ser Ala Phe Glu Asp Phe Ser Arg Ser Leu Pro Glu Leu		
1345	1350	1355 1360
Asp Arg Asp Lys Ser Asp Ser Asp Thr Glu Gly Leu Leu Phe Ser Arg		
1365	1370	1375
Asp Leu Asn Lys Gly Ala Pro Ser Gln Asp Asp Glu Ser Gly Gly Ile		
1380	1385	1390
Glu Asp Ser Pro Asp Arg Gly Ala Cys Ser Thr Pro Asp Met Pro Gln		
1395	1400	1405
Phe Glu Pro Val Lys Thr Glu Thr Met Thr Val Ser Ser Leu Ala Ile		
1410	1415	1420
Arg Lys Lys Ile Glu Pro Glu Ala Val Leu Gln Thr Arg Val Ser Ala		
1425	1430	1435 1440
Met Asp Asn Thr Gln Val Asp Gly Ser Ala Ser Val Gly Arg Glu Phe		
1445	1450	1455
Ile Ala Thr Thr Pro Ser Ile Thr Thr Glu Thr Ile Ser Thr Thr Met		
1460	1465	1470
Glu Asn Ser Leu Lys Ser Gly Lys Gly Ala Ala Ala Met Ile Pro Gly		
1475	1480	1485
Pro Gln Thr Val Ala Thr Glu Ile Arg Ser Leu Ser Pro Ile Ile Gly		
1490	1495	1500



Lys Asp Val Leu Thr Ser Thr Tyr Gly Ala Thr Ala Glu Thr Leu Ser  
1505 1510 1515 1520

Thr Ser Thr Thr Thr His Val Thr Lys Thr Val Lys Gly Gly Phe Ser  
1525 1530 1535

Glu Thr Arg Ile Glu Lys Arg Ile Ile Ile Thr Gly Asp Glu Asp Val  
1540 1545 1550

Asp Gln Asp Gln Ala Leu Ala Leu Ala Ile Lys Glu Ala Lys Leu Gln  
1555 1560 1565

His Pro Asp Met Leu Val Thr Lys Ala Val Val Tyr Arg Glu Thr Asp  
1570 1575 1580

Pro Ser Pro Glu Glu Arg Asp Lys Lys Pro Gln Lys  
1585 1590 1595

<210> 48

<211> 455

<212> PRT

<213> Homo sapiens

<400> 48

Met Ala Ala Pro Glu Glu His Asp Ser Pro Thr Glu Ala Ser Gln Pro  
1 5 10 15

Ile Val Glu Glu Glu Glu Thr Lys Thr Phe Lys Asp Leu Gly Val Thr  
20 25 30

Asp Val Leu Cys Glu Ala Cys Asp Gln Leu Gly Trp Thr Lys Pro Thr  
35 40 45

Lys Ile Gln Ile Glu Ala Ile Pro Leu Ala Leu Gln Gly Arg Asp Ile  
50 55 60

Ile Gly Leu Ala Glu Thr Gly Ser Gly Lys Thr Gly Ala Phe Ala Leu  
65 70 75 80

Pro Ile Leu Asn Ala Leu Leu Glu Thr Pro Gln Arg Leu Phe Ala Leu  
85 90 95

Val Leu Thr Pro Thr Arg Glu Leu Ala Phe Gln Ile Ser Glu Gln Phe  
100 105 110

Glu Ala Leu Gly Ser Ser Ile Gly Val Gln Ser Ala Val Ile Val Gly



370		375		380	
Lys Leu Pro Gly Phe Pro Thr Gln Asp Asp Glu Val Met Met Leu Thr					
385		390		395	400
Glu Arg Val Ala Glu Ala Gln Arg Phe Ala Arg Met Glu Leu Arg Glu					
	405		410		415
His Gly Glu Lys Lys Lys Arg Ser Arg Glu Asp Ala Gly Asp Asn Asp					
	420		425		430
Asp Thr Glu Gly Ala Ile Gly Val Arg Asn Lys Val Ala Gly Gly Lys					
	435		440		445
Met Lys Lys Arg Lys Gly Arg					
	450		455		

<210> 49  
 <211> 246  
 <212> PRT  
 <213> Homo sapiens

<400> 49  
 Met Ala Trp Ala Pro Leu Leu Leu Thr Leu Leu Ser Leu Leu Thr Gly  
 1 5 10 15  
 Ser Leu Ser Gln Pro Ile Leu Thr Gln Pro Pro Ser Ala Ser Ala Ser  
 20 25 30  
 Leu Gly Ala Ser Val Thr Leu Thr Cys Ser Val Ser Ser Asp Tyr Lys  
 35 40 45  
 Asn Leu Glu Val Asp Trp Phe Gln Gln Arg Pro Gly Lys Gly Pro Arg  
 50 55 60  
 Phe Val Met Arg Val Gly Thr Gly Gly Val Val Gly Phe Arg Gly Ala  
 65 70 75 80  
 Asp Ile Pro Asp Arg Phe Ser Val Ser Gly Ser Gly Leu Asn Arg Phe  
 85 90 95  
 Leu Thr Ile Arg Asn Ile Glu Glu Glu Asp Glu Ser Asp Tyr His Cys  
 100 105 110  
 Gly Thr Asp Leu Gly Ser Gly Thr Ser Phe Val Ser Trp Val Phe Gly  
 115 120 125



Ala Gly Val Tyr Tyr Cys Met Gln Thr Thr Gln Thr Pro Asn Thr Phe  
100 105 110

Gly Gln Gly Thr Arg Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser  
115 120 125

Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala  
130 135 140

Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val  
145 150 155 160

Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser  
165 170 175

Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr  
180 185 190

Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Leu Tyr Ala Cys  
195 200 205

Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn  
210 215 220

Arg Gly Glu Cys  
225

<210> 51  
<211> 106  
<212> PRT  
<213> Homo sapiens

<400> 51  
Gly Gln Pro Lys Ala Asn Pro Thr Val Thr Leu Phe Pro Pro Ser Ser  
1 5 10 15

Glu Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp  
20 25 30

Phe Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Gly Ser Pro  
35 40 45

Val Lys Ala Gly Val Glu Thr Thr Lys Pro Ser Lys Gln Ser Asn Asn  
50 55 60

Lys Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys

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65                      70                      75                      80  
Ser His Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val  
                         85                      90                      95

Glu Lys Thr Val Ala Pro Thr Glu Cys Ser  
                         100                      105

<210> 52  
<211> 56  
<212> PRT  
<213> Homo sapiens

<400> 52  
Arg Thr Gly Tyr Glu Glu Glu Thr Trp Asn Leu Lys Glu Cys Val Gly  
1                      5                      10                      15

Arg Cys Ala Asn Pro Asn Val Asn Phe Leu Thr Lys Val Glu Ser Pro  
                         20                      25                      30

Gly Met Val Gln Arg Trp Gly Leu Leu Leu Cys Arg Arg Asp Ser Arg  
                         35                      40                      45

Phe Thr Pro Trp Gln Lys Ile Tyr  
                         50                      55

<210> 53  
<211> 824  
<212> PRT  
<213> Homo sapiens

<400> 53  
Met Ala Phe Ala Ser Phe Arg Arg Ile Leu Ala Leu Ser Thr Phe Glu  
1                      5                      10                      15

Lys Arg Lys Ser Arg Glu Tyr Glu His Val Arg Arg Asp Leu Asp Pro  
                         20                      25                      30

Asn Glu Val Trp Glu Ile Val Gly Glu Leu Gly Asp Gly Ser Phe Gly  
                         35                      40                      45

Met Val Tyr Lys Ala Lys Asn Lys Glu Thr Gly Ala Leu Ala Ala Ala  
                         50                      55                      60

Ile Val Ile Glu Thr Lys Ser Glu Glu Glu Leu Glu Asp Tyr Ile Val  
65                      70                      75                      80



Leu Glu Asn His Thr Gln Asn Ser Ser Glu Val Ser Pro Pro Ser Leu  
340 345 350

Asn Ala Asp Lys Pro Leu Glu Glu Ser Pro Ser Thr Pro Leu Ala Pro  
355 360 365

Ser Gln Ser Gln Asp Ser Val Asn Glu Pro Cys Ser Gln Pro Ser Gly  
370 375 380

Asp Arg Ser Leu Gln Thr Thr Ser Pro Pro Val Val Ala Pro Gly Asn  
385 390 395 400

Glu Asn Gly Leu Ala Val Pro Val Pro Leu Arg Lys Ser Arg Pro Val  
405 410 415

Ser Met Asp Ala Arg Ile Gln Val Ala Gln Glu Lys Gln Val Ala Glu  
420 425 430

Gln Gly Gly Asp Leu Ser Pro Ala Ala Asn Arg Ser Gln Lys Ala Ser  
435 440 445

Gln Ser Arg Pro Asn Ser Ser Ala Leu Glu Thr Leu Gly Gly Glu Lys  
450 455 460

Leu Ala Asn Gly Ser Leu Glu Pro Pro Ala Gln Ala Ala Pro Gly Pro  
465 470 475 480

Ser Lys Arg Asp Ser Asp Cys Ser Ser Leu Cys Thr Ser Glu Ser Met  
485 490 495

Asp Tyr Gly Thr Asn Leu Ser Thr Asp Leu Ser Leu Asn Lys Glu Met  
500 505 510

Gly Ser Leu Ser Ile Lys Asp Pro Lys Leu Tyr Lys Lys Thr Leu Lys  
515 520 525

Arg Thr Arg Lys Phe Val Val Asp Gly Val Glu Val Ser Ile Thr Thr  
530 535 540

Ser Lys Ile Ile Ser Glu Asp Glu Lys Lys Asp Glu Glu Met Arg Phe  
545 550 555 560

Leu Arg Arg Gln Glu Leu Arg Glu Leu Arg Leu Leu Gln Lys Glu Glu  
565 570 575

His Arg Asn Gln Thr Gln Leu Ser Asn Lys His Glu Leu Gln Leu Glu  
580 585 590



Gln Met His Lys Arg Phe Glu Gln Glu Ile Asn Ala Lys Lys Lys Phe  
595 600 605

Phe Asp Thr Glu Leu Glu Asn Leu Glu Arg Gln Gln Lys Gln Gln Val  
610 615 620

Glu Lys Met Glu Gln Asp His Ala Val Arg Arg Arg Glu Glu Ala Arg  
625 630 635 640

Arg Ile Arg Leu Glu Gln Asp Arg Asp Tyr Thr Arg Phe Gln Glu Gln  
645 650 655

Leu Lys Leu Met Lys Lys Glu Val Lys Asn Glu Val Glu Lys Leu Pro  
660 665 670

Arg Gln Gln Arg Lys Glu Ser Met Lys Gln Lys Met Glu Glu His Thr  
675 680 685

Gln Lys Lys Gln Leu Leu Asp Arg Asp Phe Val Ala Lys Gln Lys Glu  
690 695 700

Asp Leu Glu Leu Ala Met Lys Arg Leu Thr Thr Asp Asn Arg Arg Glu  
705 710 715 720

Ile Cys Asp Lys Glu Arg Glu Cys Leu Met Lys Lys Gln Glu Leu Leu  
725 730 735

Arg Asp Arg Glu Ala Ala Leu Trp Glu Met Glu Glu His Gln Leu Gln  
740 745 750

Glu Arg His Gln Leu Val Lys Gln Gln Leu Lys Asp Gln Tyr Phe Leu  
755 760 765

Gln Arg His Glu Leu Leu Arg Lys His Glu Lys Glu Arg Glu Gln Met  
770 775 780

Gln Arg Tyr Asn Gln Arg Met Ile Glu Gln Leu Lys Val Arg Gln Gln  
785 790 795 800

Gln Glu Lys Ala Arg Leu Pro Lys Ile Gln Arg Ser Glu Gly Lys Thr  
805 810 815

Arg Met Ala Met Tyr Lys Lys Ser  
820

<210> 54

<211> 1997  
 <212> PRT  
 <213> Homo sapiens

<400> 54

Met Leu Ser His Gly Ala Gly Leu Ala Leu Trp Ile Thr Leu Ser Leu  
 1 5 10 15

Leu Gln Thr Gly Leu Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala  
 20 25 30

Glu Ser Lys Ala Ser Ser His Ser Val Ser Ile Gln Trp Arg Ile Leu  
 35 40 45

Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly  
 50 55 60

Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys  
 65 70 75 80

Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Arg Ile Ile  
 85 90 95

Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro  
 100 105 110

Pro Ala Arg Phe Gly Val Ser Lys Glu Lys Thr Thr Ser Thr Ser Leu  
 115 120 125

His Val Trp Trp Thr Pro Ser Ser Gly Lys Val Thr Ser Tyr Glu Val  
 130 135 140

Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln  
 145 150 155 160

Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly  
 165 170 175

Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser  
 180 185 190

Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys Asp  
 195 200 205

Ile Gly Ile Ser Thr Lys Ala Asn Ser Leu Leu Ile Ser Trp Ser His  
 210 215 220

Gly Ser Gly Asn Val Glu Arg Tyr Arg Leu Met Leu Met Asp Lys Gly

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225		230		235		240									
Ile	Leu	Val	His	Gly	Gly	Val	Val	Asp	Lys	His	Ala	Thr	Ser	Tyr	Ala
				245					250					255	
Phe	His	Gly	Leu	Ser	Pro	Gly	Tyr	Leu	Tyr	Asn	Leu	Thr	Val	Met	Thr
			260					265					270		
Glu	Ala	Ala	Gly	Leu	Gln	Asn	Tyr	Arg	Trp	Lys	Leu	Val	Arg	Thr	Ala
			275				280					285			
Pro	Met	Glu	Val	Ser	Asn	Leu	Lys	Val	Thr	Asn	Asp	Gly	Ser	Leu	Thr
	290					295					300				
Ser	Leu	Lys	Val	Lys	Trp	Gln	Arg	Pro	Pro	Gly	Asn	Val	Asp	Ser	Tyr
305					310					315				320	
Asn	Ile	Thr	Leu	Ser	His	Lys	Gly	Thr	Ile	Lys	Glu	Ser	Arg	Val	Leu
			325						330					335	
Ala	Pro	Trp	Ile	Thr	Glu	Thr	His	Phe	Lys	Glu	Leu	Val	Pro	Gly	Arg
			340					345					350		
Leu	Tyr	Gln	Val	Thr	Val	Ser	Cys	Val	Ser	Gly	Glu	Leu	Ser	Ala	Gln
	355						360					365			
Lys	Met	Ala	Val	Gly	Arg	Thr	Phe	Pro	Asp	Lys	Val	Ala	Asn	Leu	Glu
	370					375					380				
Ala	Asn	Asn	Asn	Gly	Arg	Met	Arg	Ser	Leu	Val	Val	Ser	Trp	Ser	Pro
385					390					395					400
Pro	Ala	Gly	Asp	Trp	Glu	Gln	Tyr	Arg	Ile	Leu	Leu	Phe	Asn	Asp	Ser
			405						410					415	
Val	Val	Leu	Leu	Asn	Ile	Thr	Val	Gly	Lys	Glu	Glu	Thr	Gln	Tyr	Val
		420						425					430		
Met	Asp	Asp	Thr	Gly	Leu	Val	Pro	Gly	Arg	Gln	Tyr	Glu	Val	Glu	Val
	435						440					445			
Ile	Val	Glu	Ser	Gly	Asn	Leu	Lys	Asn	Ser	Glu	Arg	Cys	Gln	Gly	Arg
	450					455					460				
Thr	Val	Pro	Leu	Ala	Val	Leu	Gln	Leu	Arg	Val	Lys	His	Ala	Asn	Glu
465					470					475					480
Thr	Ser	Leu	Ser	Ile	Met	Trp	Gln	Thr	Pro	Val	Ala	Glu	Trp	Glu	Lys

485	490	495
Tyr Ile Ile Ser Leu Ala Asp Arg Asp Leu Leu Leu Ile His Lys Ser		
500	505	510
Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe Thr Asp Leu Val Pro Gly		
515	520	525
Arg Lys Tyr Met Ala Thr Val Thr Ser Ile Ser Gly Asp Leu Lys Asn		
530	535	540
Ser Ser Ser Val Lys Gly Arg Thr Val Pro Ala Gln Val Thr Asp Leu		
545	550	555
His Val Ala Asn Gln Gly Met Thr Ser Ser Leu Phe Thr Asn Trp Thr		
565	570	575
Gln Ala Gln Gly Asp Val Glu Phe Tyr Gln Val Leu Leu Ile His Glu		
580	585	590
Asn Val Val Ile Lys Asn Glu Ser Ile Ser Ser Glu Thr Ser Arg Tyr		
595	600	605
Ser Phe His Ser Leu Lys Ser Gly Ser Leu Tyr Ser Val Val Val Thr		
610	615	620
Thr Val Ser Gly Gly Ile Ser Ser Arg Gln Val Val Val Glu Gly Arg		
625	630	635
Thr Val Pro Ser Ser Val Ser Gly Val Thr Val Asn Asn Ser Gly Arg		
645	650	655
Asn Asp Tyr Leu Ser Val Ser Trp Leu Val Ala Pro Gly Asp Val Asp		
660	665	670
Asn Tyr Glu Val Thr Leu Ser His Asp Gly Lys Val Val Gln Ser Leu		
675	680	685
Val Ile Ala Lys Ser Val Arg Glu Cys Ser Phe Ser Ser Leu Thr Pro		
690	695	700
Gly Arg Leu Tyr Thr Val Thr Ile Thr Thr Arg Ser Gly Lys Tyr Glu		
705	710	715
Asn His Ser Phe Ser Gln Glu Arg Thr Val Pro Asp Lys Val Gln Gly		
725	730	735
Val Ser Val Ser Asn Ser Ala Arg Ser Asp Tyr Leu Arg Val Ser Trp		

740	745	750
Val Tyr Ala Thr Gly Asp Phe Asp His Tyr Glu Val Thr Ile Lys Asn		
755	760	765
Lys Asn Asn Phe Ile Gln Thr Lys Ser Ile Pro Lys Ser Glu Asn Glu		
770	775	780
Cys Val Phe Val Gln Leu Val Pro Gly Arg Leu Tyr Ser Val Thr Val		
785	790	795
		800
Thr Thr Lys Ser Gly Gln Tyr Glu Ala Asn Glu Gln Gly Asn Gly Arg		
	805	810
		815
Thr Ile Pro Glu Pro Val Lys Asp Leu Thr Leu Arg Asn Arg Ser Thr		
	820	825
		830
Glu Asp Leu His Val Thr Trp Ser Gly Ala Asn Gly Asp Val Asp Gln		
	835	840
		845
Tyr Glu Ile Gln Leu Leu Phe Asn Asp Met Lys Val Phe Pro Pro Phe		
	850	855
		860
His Leu Val Asn Thr Ala Thr Glu Tyr Arg Phe Thr Ser Leu Thr Pro		
865	870	875
		880
Gly Arg Gln Tyr Lys Ile Leu Val Leu Thr Ile Ser Gly Asp Val Gln		
	885	890
		895
Gln Ser Ala Phe Ile Glu Gly Phe Thr Val Pro Ser Ala Val Lys Asn		
	900	905
		910
Ile His Ile Ser Pro Asn Gly Ala Thr Asp Ser Leu Thr Val Asn Trp		
	915	920
		925
Thr Pro Gly Gly Gly Asp Val Asp Ser Tyr Thr Val Ser Ala Phe Arg		
	930	935
		940
His Ser Gln Lys Val Asp Ser Gln Thr Ile Pro Lys His Val Phe Glu		
945	950	955
		960
His Thr Phe His Arg Leu Glu Ala Gly Glu Gln Tyr Gln Ile Met Ile		
	965	970
		975
Ala Ser Val Ser Gly Ser Leu Lys Asn Gln Ile Asn Val Val Gly Arg		
	980	985
		990
Thr Val Pro Ala Ser Val Gln Gly Val Ile Ala Asp Asn Ala Tyr Ser		

995	1000	1005
Ser Tyr Ser Leu Ile Val Ser Trp Gln Lys Ala Ala Gly Val Ala Glu		
1010	1015	1020
Arg Tyr Asp Ile Leu Leu Leu Thr Glu Asn Gly Ile Leu Leu Arg Asn		
1025	1030	1035 1040
Thr Ser Glu Pro Ala Thr Thr Lys Gln His Lys Phe Glu Asp Leu Thr		
1045	1050	1055
Pro Gly Lys Lys Tyr Lys Ile Gln Ile Leu Thr Val Ser Gly Gly Leu		
1060	1065	1070
Phe Ser Lys Glu Ala Gln Thr Glu Gly Arg Thr Val Pro Ala Ala Val		
1075	1080	1085
Thr Asp Leu Arg Ile Thr Glu Asn Ser Thr Arg His Leu Ser Phe Arg		
1090	1095	1100
Trp Thr Ala Ser Glu Gly Glu Leu Ser Trp Tyr Asn Ile Phe Leu Tyr		
1105	1110	1115 1120
Asn Pro Asp Gly Asn Leu Gln Glu Arg Ala Gln Val Asp Pro Leu Val		
1125	1130	1135
Gln Ser Phe Ser Phe Gln Asn Leu Leu Gln Gly Arg Met Tyr Lys Met		
1140	1145	1150
Val Ile Val Thr His Ser Gly Glu Leu Ser Asn Glu Ser Phe Ile Phe		
1155	1160	1165
Gly Arg Thr Val Pro Ala Ser Val Ser His Leu Arg Gly Ser Asn Arg		
1170	1175	1180
Asn Thr Thr Asp Ser Leu Trp Phe Asn Trp Ser Pro Ala Ser Gly Asp		
1185	1190	1195 1200
Phe Asp Phe Tyr Glu Leu Ile Leu Tyr Asn Pro Asn Gly Thr Lys Lys		
1205	1210	1215
Glu Asn Trp Lys Asp Lys Asp Leu Thr Glu Trp Arg Phe Gln Gly Leu		
1220	1225	1230
Val Pro Gly Arg Lys Tyr Val Leu Trp Val Val Thr His Ser Gly Asp		
1235	1240	1245
Leu Ser Asn Lys Val Thr Ala Glu Ser Arg Thr Ala Pro Ser Pro Pro		

1250	1255	1260
Ser Leu Met Ser Phe Ala Asp Ile Ala Asn Thr Ser Leu Ala Ile Thr		
1265	1270	1275 1280
Trp Lys Gly Pro Pro Asp Trp Thr Asp Tyr Asn Asp Phe Glu Leu Gln		
1285	1290	1295
Trp Leu Pro Arg Asp Ala Leu Thr Val Phe Asn Pro Tyr Asn Asn Arg		
1300	1305	1310
Lys Ser Glu Gly Arg Ile Val Tyr Gly Leu Arg Pro Gly Arg Ser Tyr		
1315	1320	1325
Gln Phe Asn Val Lys Thr Val Ser Gly Asp Ser Trp Lys Thr Tyr Ser		
1330	1335	1340
Lys Pro Ile Phe Gly Ser Val Arg Thr Lys Pro Asp Lys Ile Gln Asn		
1345	1350	1355 1360
Leu His Cys Arg Pro Gln Asn Ser Thr Ala Ile Ala Cys Ser Trp Ile		
1365	1370	1375
Pro Pro Asp Ser Asp Phe Asp Gly Tyr Ser Ile Glu Cys Arg Lys Met		
1380	1385	1390
Asp Thr Gln Glu Val Glu Phe Ser Arg Lys Leu Glu Lys Glu Lys Ser		
1395	1400	1405
Leu Leu Asn Ile Met Met Leu Val Pro His Lys Arg Tyr Leu Val Ser		
1410	1415	1420
Ile Lys Val Gln Ser Ala Gly Met Thr Ser Glu Val Val Glu Asp Ser		
1425	1430	1435 1440
Thr Ile Thr Met Ile Asp Arg Pro Pro Pro Pro Pro Pro His Ile Arg		
1445	1450	1455
Val Asn Glu Lys Asp Val Leu Ile Ser Lys Ser Ser Ile Asn Phe Thr		
1460	1465	1470
Val Asn Cys Ser Trp Phe Ser Asp Thr Asn Gly Ala Val Lys Tyr Phe		
1475	1480	1485
Thr Val Val Val Arg Glu Ala Asp Gly Ser Asp Glu Leu Lys Pro Glu		
1490	1495	1500
Gln Gln His Pro Leu Pro Ser Tyr Leu Glu Tyr Arg His Asn Ala Ser		

1505					1510						1515					1520
Ile	Arg	Val	Tyr	Gln	Thr	Asn	Tyr	Phe	Ala	Ser	Lys	Cys	Ala	Glu	Asn	
				1525					1530					1535		
Pro	Asn	Ser	Asn	Ser	Lys	Ser	Phe	Asn	Ile	Lys	Leu	Gly	Ala	Glu	Met	
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Glu	Ser	Leu	Gly	Gly	Lys	Cys	Asp	Pro	Thr	Gln	Gln	Lys	Phe	Cys	Asp	
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Gly	Pro	Leu	Lys	Pro	His	Thr	Ala	Tyr	Arg	Ile	Ser	Ile	Arg	Ala	Phe	
	1570					1575					1580					
Thr	Gln	Leu	Phe	Asp	Glu	Asp	Leu	Lys	Glu	Phe	Thr	Lys	Pro	Leu	Tyr	
1585					1590					1595					1600	
Ser	Asp	Thr	Phe	Phe	Ser	Leu	Pro	Ile	Thr	Thr	Glu	Ser	Glu	Pro	Leu	
			1605						1610					1615		
Phe	Gly	Ala	Ile	Glu	Gly	Val	Ser	Ala	Gly	Leu	Phe	Leu	Ile	Gly	Met	
		1620						1625					1630			
Leu	Val	Ala	Val	Val	Ala	Leu	Leu	Ile	Cys	Arg	Gln	Lys	Val	Ser	His	
	1635					1640						1645				
Gly	Arg	Glu	Arg	Pro	Ser	Ala	Arg	Leu	Ser	Ile	Arg	Arg	Asp	Arg	Pro	
	1650					1655					1660					
Leu	Ser	Val	His	Leu	Asn	Leu	Gly	Gln	Lys	Gly	Asn	Arg	Lys	Thr	Ser	
1665					1670					1675					1680	
Cys	Pro	Ile	Lys	Ile	Asn	Gln	Phe	Glu	Gly	His	Phe	Met	Lys	Leu	Gln	
			1685						1690					1695		
Ala	Asp	Ser	Asn	Tyr	Leu	Leu	Ser	Lys	Glu	Tyr	Glu	Glu	Leu	Lys	Asp	
		1700						1705					1710			
Val	Gly	Arg	Asn	Gln	Ser	Cys	Asp	Ile	Ala	Leu	Leu	Pro	Glu	Asn	Arg	
		1715					1720					1725				
Gly	Lys	Asn	Arg	Tyr	Asn	Asn	Ile	Leu	Pro	Tyr	Asp	Ala	Thr	Arg	Val	
	1730					1735					1740					
Lys	Leu	Ser	Asn	Val	Asp	Asp	Asp	Pro	Cys	Ser	Asp	Tyr	Ile	Asn	Ala	
1745				1750					1755						1760	
Ser	Tyr	Ile	Pro	Gly	Asn	Asn	Phe	Arg	Arg	Glu	Tyr	Ile	Val	Thr	Gln	



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1765	1770	1775
Gly Pro Leu Pro Gly Thr Lys Asp Asp Phe Trp Lys Met Val Trp Glu 1780 1785 1790		
Gln Asn Val His Asn Ile Val Met Val Thr Gln Cys Val Glu Lys Gly 1795 1800 1805		
Arg Val Lys Cys Asp His Tyr Trp Pro Ala Asp Gln Asp Ser Leu Tyr 1810 1815 1820		
Tyr Gly Asp Leu Ile Leu Gln Met Leu Ser Glu Ser Val Leu Pro Glu 1825 1830 1835 1840		
Trp Thr Ile Arg Glu Phe Lys Ile Cys Gly Glu Glu Gln Leu Asp Ala 1845 1850 1855		
His Arg Leu Ile Arg His Phe His Tyr Thr Val Trp Pro Asp His Gly 1860 1865 1870		
Val Pro Glu Thr Thr Gln Ser Leu Ile Gln Phe Val Arg Thr Val Arg 1875 1880 1885		
Asp Tyr Ile Asn Arg Ser Pro Gly Ala Gly Pro Thr Val Val His Cys 1890 1895 1900		
Ser Ala Gly Val Gly Arg Thr Gly Thr Phe Ile Ala Leu Asp Arg Ile 1905 1910 1915 1920		
Leu Gln Gln Leu Asp Ser Lys Asp Ser Val Asp Ile Tyr Gly Ala Val 1925 1930 1935		
His Asp Leu Arg Leu His Arg Val His Met Val Gln Thr Glu Cys Gln 1940 1945 1950		
Tyr Val Tyr Leu His Gln Cys Val Arg Asp Val Leu Arg Ala Arg Lys 1955 1960 1965		
Leu Arg Ser Glu Gln Glu Asn Pro Leu Phe Pro Ile Tyr Glu Asn Val 1970 1975 1980		
Asn Pro Glu Tyr His Arg Asp Pro Val Tyr Ser Arg His 1985 1990 1995		

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<212> PRT

<213> Homo sapiens

<400> 55

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Arg Ser Asp Ser Ser Ser Ser Leu Pro Pro Lys Leu Leu Leu Val Ser  
20 25 30

Phe Asp Gly Phe Arg Ala Asp Tyr Leu Lys Asn Tyr Glu Phe Pro His  
35 40 45

Leu Gln Asn Phe Ile Lys Glu Gly Val Leu Val Glu His Val Lys Asn  
50 55 60

Val Phe Ile Thr Lys Thr Phe Pro Asn His Tyr Ser Ile Val Thr Gly  
65 70 75 80

Leu Tyr Glu Glu Ser His Gly Ile Val Ala Asn Ser Met Tyr Asp Ala  
85 90 95

Val Thr Lys Lys His Phe Ser Asp Ser Asn Asp Lys Asp Pro Phe Trp  
100 105 110

Trp Asn Glu Ala Val Pro Ile Trp Val Thr Asn Gln Leu Gln Glu Asn  
115 120 125

Arg Ser Ser Ala Ala Ala Met Trp Pro Gly Thr Asp Val Pro Ile His  
130 135 140

Asp Thr Ile Ser Ser Tyr Phe Met Asn Tyr Asn Ser Ser Val Ser Phe  
145 150 155 160

Glu Glu Arg Leu Asn Asn Ile Thr Met Trp Leu Asn Asn Ser Asn Pro  
165 170 175

Pro Val Thr Phe Ala Thr Leu Tyr Trp Glu Glu Pro Asp Ala Ser Gly  
180 185 190

His Lys Tyr Gly Pro Glu Asp Lys Glu Asn Met Ser Arg Val Leu Lys  
195 200 205

Lys Ile Asp Asp Leu Ile Gly Asp Leu Val Gln Arg Leu Lys Met Leu  
210 215 220

Gly Leu Trp Glu Asn Leu Asn Val Ile Ile Thr Ser Asp His Gly Met  
225 230 235 240



# SECRET

1



Asp Val Val Ile Val Leu Thr Gly Trp Arg Pro Gly Ser Gly Phe Thr  
515 520 525

Asn Thr Met Arg Val Val Pro Val Pro  
530 535

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